on the widths of x-ray reflections is considered.

The next two chapters consider briefly the motion of electrons in a perfect lattice and the cohesive forces in metals. Following this there is an excellent discussion of electric and thermal conductivity in metals. The treatment is particularly good in its careful examination of the validity of the various assumptions used. After this the author describes present theories for para, dia, ferro, and antiferromagnetism. Then a chapter is included on the absorption and emission of electromagnetic radiation. There follows a brief discussion of semiconductors, rectifying contacts, and luminescence. There is finally a chapter on superconductivity, in which first the experimental facts are presented and then the Bardeen Frohlich theory is discussed with emphasis on the things that remain to be done.

To summarize, this is an excellent book for those who wish to study certain theoretical methods that have been used in the quantum theory of solids. In the particular fields in which some detail is given the treatment is very rewarding.

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Fundamental Formulas of Physics. Donald H. Menzel, Ed. Prentice-Hall, New York, 1955. xxxv + 765 pp. Illus. $13.50. $10.65 to schools.

This book attempts to provide comprehensive coverage, at the research level, of the fundamental formulas of mathematical physics, including classical and modern physics; mathematics and statistics; and various cross-fields such as physical chemistry, astrophysics, and biophysics. The formulas from this broad range are arranged into 31 chapters written by almost as many different authors. There are a 106-page chapter on basic mathematical formulas, a chapter each on statistics and nomograms, a chapter listing recent values of commonly used physical constants, 12 chapters on various aspects of classical physics, ten chapters on topics from atomic and nuclear physics, and five chapters on cross-fields. This style of organization makes it relatively easy to locate the formulas that apply to a particular topic.

Each author was given a free hand in preparing his own chapter or chapters. As a result, there is a wide variety in the styles of the various chapters. Some authors give sketchy coverage and do little more than list formulas, while others write compressed textbooks. In order to get such a large amount of material into a single volume, formulas are given without derivation. There is quite a degree of overlap between certain chapters. The notation varies to some extent from chapter to chapter. Thus the user of the book will usually have to examine the entire chapter in which a formula appears in order to be sure of notation and limitations on applicability. The differences among authors have led to the slighting of some topics relative to others. For example, 31 pages are devoted to special relativity and only 33 pages to classical mechanics and 13 pages to heat and thermodynamics; 44 pages are given to geometrical optics, but only 20 pages to quantum mechanics and 19 pages to nuclear theory. From the standpoint of organization and balance among topics, this book is inferior to its predecessor in the field of formulation, E. Madelung's *Die Mathematischen Hilfsmittel des Physikers.*

Considerable care has been given to the printing of the book; relatively fewer errors show up in equations than in text material. Unfortunately, very few illustrations were used. Only 24 figures appear, 14 of which come in the adequately illustrated chapter on electromagnetic theory. In many instances, simple diagrams would have clarified the meaning of symbols occurring in formulas. Most chapters contain a valuable list of references from which the reader can obtain more detailed information on the topics covered.

The general style of the book is quite sophisticated. The nonspecialist will encounter considerable difficulty in applying the material contained in most chapters. Although the book is broad in coverage, certain topics are omitted or treated very briefly; among these are mechanics of rotation, rigid body mechanics, the tensor character of the mechanical and electric properties of anisotropic bodies, theory of elasticity, crystal structure, and x-rays.

Despite these shortcomings, the editor and authors are to be congratulated upon the preparation of such an extensive compendium of the relationships used in current-day mathematical physics. There is enough material included to make this a valuable reference book for every physicist, theoretical and experimental alike.

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New Books

Science in Progress, Ser. 9. George A. Baitsell, Ed. Yale Univ. Press, New Haven, Conn., 1955. 343 pp. $6.50.

International Review of Cytology. G. H. Bourne and J. F. Danielli, Eds. Academic Press, New York, 1955. 419 pp. $9.

Introduction to Electronic Analogue Computers. C. A. A. Wass. McGraw-Hill, New York; Pergamon, London, 1955. 237 pp. $6.50.

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Dried BCG Vaccine. Yoji Obayashi. World Health Organization, Geneva, 1955. 220 pp. $5.

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Legal Medicine, Pathology and Toxicology. Thomas A. Gonzales *et al.* Appleton-Century-Crofts, New York, ed. 2, 1954. 1349 pp.

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Atomic Energy Research at Harwell. K. E. B. Jay. Philosophical Library, New York, 1955. 144 pp. $4.75.

The Golden Book of Astronomy. A child's introduction to the wonders of space. Rose Wyler and John Polgreen. Simon and Schuster, New York, 1955. $3.95.