commercially available. Unfortunately, such limited citations, which occur throughout the book, do not survey the field of acceptable available equipment. A notable omission concerns the highly successful employment of vibrator (chopper) type amplifiers for high-sensitivity, drift-free recording of small direct current potentials.

A virtue of this book is its conciseness, and it would be unfair to enumerate all the things that might have been included. Under the heading of recording devices, for example, one might wish for mention of the enormously important role to be played in the near future by frequency-modulated tape-recording of physiological variables. Tape-recording provides the present possibility of instrumental reproduction and review, rerecording, and reanalysis and the eventual possibility even of automatic measurement and tabulation.

Preceding the final chapter on the laboratory workshop is one which is especially valuable at the present stage of electronic development—on transistor theory, transistor types, and comparison of transistor with vacuum tube circuitry. Recommendations are made regarding useful, currently available transistor types.

The book is what it purports to be and can be recommended as a useful, simplified, brief presentation of basic electronic theory and its application to psychophysiological problems.

CHESTER W. DARROW
Psychophysiological Laboratory, Institute for Juvenile Research, Chicago, Illinois

A Handbook of Lattice Spacings and Structures of Metals and Alloys. W. B. Pearson. Pergamon Press, New York and London, 1958. x + 1044 pp. Illus. $38.

In 1912 von Laue discovered the diffraction of x-rays by crystals. This was immediately applied by the Braggs to the elucidation of the atomic arrangements in solid matter. However, it was not until the early 1920's that the new technique was sufficiently developed for large-scale application to the study of metals. For this development thanks are largely due to the pioneer work of Arne Westgren and of A. J. Bradley. As a result of their work the x-ray diffraction technique now takes its place alongside the classical thermal and microscopic methods as an essential tool in metallurgical research, an important aspect of which is the determination of thermal equilibrium diagrams.

The book under review is largely concerned with the enormous developments in alloy structure determinations and phase diagram studies which have taken place since those early days. It is truly encyclopedic in character. Its coverage of the vast literature which has grown up since those early days—much of it scattered and buried in obscure papers—is astonishingly complete, and the condensation of this literature into usable form in the space of a single volume is a truly remarkable achievement. The book will prove an indispensable vade mecum for the metallurgist and will be of invaluable service to the solid-state physicist.

Among the most useful features of the book is the long table of intermediate phases, which includes some 4000 compositions. Comprehensive as it is, I noted at least 30 omissions; among these may be mentioned Fe_3Mo_2, $MoBe_{13}$, MnZn, Mn_3Sn_2, InMg, Fe_3Ti, and $MgZn_5$. I feel that the lattice spacings should have been uniformly given in absolute angstrom units. The table provided on page 257 for the conversion of kX to angstrom units is not very helpful and could have been omitted.

The discussion of lattice parameter determinations would have been greatly clarified if a diagram illustrating the various film arrangements for the powder diagrams had been given. A discussion of modern powder diffractometry, with its special advantages, would have been appropriate here.

The real meat of the book is given in chapters 11 and 12. Here we have 640 pages of detailed, well-coordinated, accurate, and excellently illustrated data on the lattice parameters of alloys, metal carbides, borides, and nitrides, along with details concerning their purity, preparation, heat treatment, and equilibrium structures. These two chapters represent a real tour de force and will save the reader countless hours of literature searching. The text, comprehensive as it is, needs to be supplemented with phase diagrams. Could room be made for them in the next edition?

A. TAYLOR
Research Laboratories, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania

Plant Design and Economics for Chemical Engineers. Max S. Peters. McGraw-Hill, New York, 1958. xi + 511 pp. Illus. $11.

This book by Max Peters is the latest addition to the literature directed towards the economics of chemical engineering. The objective of this volume is to present economic and design principles as applied to chemical engineering processes and operations. The early chapters develop the principles of applied economics, covering such topics as interest, investment costs, depreciation, taxes, and cost accounting. For the most part, the remainder of the book discusses equipment design and costs in considerable detail.

The attempt to treat so broad a subject in one volume has resulted in scanty coverage of such topics as waste disposals, patents, and equipment fabrication. Numerous problems are included at the end of most chapters, and there are some major design problems.

The book is intended for the advanced student as well as the practicing engineer; it should prove to be of greater value to the student.

HERBERT M. SCHOEN
American Cyanamid Company, Stamford, Connecticut

Einführung in die Messtechnik der Kernstrahlung und die Anwendung der Radioisotope. Heinrich Fassbender. Thieme, Stuttgart, 1958. 223 pp. $8.85.

This book presents in five chapters a clear and compendious introduction to radioisotope techniques. Emphasis is on the German development (about 65 of the 75 references deal with German publications). Thus, the book provides an interesting reflection on the present status of German science in this important field and, at the same time, is useful to the student.

A. T. KREBS
U.S. Army Medical Research Laboratory, Fort Knox, Kentucky

New Books

The Absorption of Infrared Radiation. Robert P. Bauman. McGraw-Hill, New York, 1958. 551 pp. $8.90.

The Academic Marketplace. Theodore Caplow and Reece J. McGee. Basic Books, New York, 1958. 272 pp. $4.95.

The Background of Astronomy. Henry C. King. Braziller, New York, 1958. 254 pp. $5.

Principles and Applications of Random Noise Theory. Julius S. Bendat. Wiley, New York, 1958. 452 pp. $11.

Reticular Formation of the Brain. A symposium sponsored by the Henry Ford Hospital, Detroit, Michigan, and held at the hospital 14–16 March 1957. Herbert H. Jasper, Lorne D. Proctor, Robert S. Knighton, William C. Noshay, Russell T. Costello, Eds. Little, Brown, Boston, 1958. 780 pp. $16.

Vistas in Astronautics. First annual Air Force Office of Scientific Research Astronautics Symposium. Morton Alperin and Marvin Stern, Eds. Pergamon, New York and London, 1958. 351 pp. $15.

The Waking Brain. H. W. Magoun. Thomas, Springfield, Ill., 1958. 146 pp. $4.75.