mechanical and physical properties of solids, chiefly metals, is recounted from a mathematical and physical point of view.

The book is divided into three major sections. Part I reviews the physical theory of crystalline solids, describes the geometrical and structural character of crystal imperfections of interest and includes an exposition of the mathematical theory of elasticity, and the elastic theory of dislocations. Part II describes observational methods and the metallography of dislocations, and comprises a lengthy and thoroughgoing treatment of the dislocation theory of the mechanical deformation of crystals, with the emphasis being placed upon metallic deformation. The topical content of the work is comparable to that of the 1943 volume, "Structure of Metals," of C. S. Barrett, but is thoroughly cognizant of modern work up to 1959. Part III discusses imperfections in non-metallic crystals, and includes chapters on electrical and optical properties of ionic and covalent crystals, electrical and structural imperfections in the semiconductors germanium and silicon, and concludes with the plastic deformation and irradiation of diamond-structure materials and defect diffusion and internal friction in germanium and silicon. Each of the thirty one chapters of the book is followed by a bibliography of references to pertinent literature. The author's style is eminently readable if occasionally verbose and repetitious. He acknowledges the formulative and controversial state of some aspects of the science. Individual examples of his facility for discussing opposing or complementary points of view occur in the short chapter on the production of imperfections during plastic deformation, and in a chapter on the physical observation of defects in which debated issues and open questions concerning the interpretation of conductivity measurements and of the recovery from radiation damage are lucidly discussed.

"Imperfections in Crystals" is notable for its breadth of coverage of its chosen field. Each chapter is nearly complete within itself. Although some redundancy is thus inevitable, it should hence prove a useful source for rapid reference concerning special aspects of the behavior of imperfections in crystalline solids.

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Medicinal Chemistry. Second Edition. Edited by ALFRED BURGER, Professor of Chemistry, University of Virginia, Charlottesville. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1960. xiii + 1243 pp. 19 × 26 cm. Price, $37.50.

The new edition of Burger's "Medicinal Chemistry" has been anxiously awaited by workers in this field and now belongs squarely on the shelf between the books on organic chemistry and books on pharmacology. It is a compendium of useful information to those interested in the subject of drugs and provides "the" means of making a rapid and moderately comprehensive survey of a number of diversified areas.

In contrast to the original edition, the new edition is a collaborative effort of Dr. Burger and thirty-four specialists. However, twenty-two of the fifty-five chapters are written by the senior author. The book itself has more than doubled in size and, unfortunately, publication costs have increased correspondingly.

The organizational pattern has remained essentially the same and the four main topics are: (1) fundamental aspects of medicinal chemistry, (2) pharmacodynamic agents, (3) vitamins and hormones, and (4) chemotherapy. The primary approach to these subjects is from the chemical standpoint. Any criticism of this approach has been deftly anticipated by the editor in his introductory chapter. However, one is left with the impression that there is an over-emphasis on organic chemistry, an under-emphasis on screening methodology, and a sparcity of structure–activity data. The space covered by the various chapters is often unrelated to the importance of the subject matter and one wonders what perspective the unitiated might achieve upon reading the book.

Some twelve topics not covered in the original edition have been added. Some of the new chapter headings are: "Neuropharmacology," "Psychopharmacologicals," "Drug for Hyperkinetic Disorders and Muscle Relaxants," "Ganglionic Blocking Agents" and "Hypotensive Drugs." Of the older topics which have been revised and brought up to date, particularly comprehensive are the chapters on: "The Vitamins" by A. Wagner and K. Folkers, "The Steroid Hormones" by W. Nes, and "Antibiotics" by M. Rebstock.

The effort to capture, even momentarily, the literature of such a rapidly expanding field is unquestionably a painstaking task for which the users of this book will be appreciative. The unavoidable delay from manuscript to printing necessarily dates such a work before it is completed. Projecting the third edition ten years in advance, one is impressed with the enormity of the task. Perhaps medicinal chemistry is reaching a state of maturity and justifies a yearly publication that would periodically review various topics of interest. Certainly, Dr. Burger is eminently qualified to organize such an effort.

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Gmelins Handbuch der Anorganischen Chemie. Achte Völlig Neu Bearbeitete Auflage. Strontium. Ergänzungsband. System-Nummer 29. Edited by E. H. ERICH PIETSCH. Verlag Chemie, G.m.b.H., Pappelallee 3, Weinheim/Bergstr., Germany. 1960. xxx + 306 pp. 17.5 × 25.5 cm. Price, $46.50 (in wrappers); $47.50 (cloth bound).

Gmelins Handbuch der Anorganischen Chemie. Achte Völlig Neu Bearbeitete Auflage. Barium. Ergänzungsband. System-Nummer 30. Edited by E. H. ERICH. PIETSCH. Verlag Chemie, G.m.b.H., Pappelallee 3, Weinheim/ Bergstr., Germany. 1960. xlv + 569 pp. 17.5 × 25.5 cm. Price, $84.50 (in wrappers); $85.50 (cloth bound).

These two volumes continue the same outstanding tradition which made "Gmelins Handbuch" the most valuable reference work in inorganic chemistry.

The volumes cover natural occurrence of the elements (including extraterrestrial occurrence!), geochemistry, mineralogy, preparation and properties of the elements, their physiological properties and the detailed discussion on the preparation and properties of most of the inorganic compounds containing these elements. It is perhaps unfortunate that the organometallic complexes are not included in the discussion.

Literature search seems to be as complete as humanly possible and even obscure publications do not escape notice. It is, however, somewhat surprising that according to the title page, the literature has been covered only through 1949, although in the text one does find occasional references to later publications up to 1955. It seems that for volumes published in 1960 a more complete coverage of recent literature should have been possible.

The usefulness of the new edition is enhanced by an English table of contents and by translations of sub-titles throughout the text. In addition, a concise and clear style of writing makes Gmelin readily accessible to chemists with only a very slight knowledge of the German language.

While the two volumes do not have indices, this lack is partially remedied by a very detailed table of contents.

The high price of these volumes will probably keep them from the bookshelves of an average chemist, but it is difficult to imagine a chemistry laboratory without a complete collection of the "Gmelin Handbuch."

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