

proteins by neoplastic tissues, and these topics are discussed authoritatively.

This little book should be of considerable interest to all those persons interested in the basic biochemistry of the cancer cell. The coverage is definitely limited, but the treatment is generally good.

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A Full Spectrum

Joseph Priestley. Selections from his writings. Ira V. Brown, Ed. Pennsylvania State University Press, University Park, 1962. x + 343 pp. \$5.50.

Joseph Priestley, one of the most prolific writers in a century noted for its prolixity (one need only think of Gibbon), is known today primarily for his discovery of oxygen and a number of other "airs," but his work on gases was only a part of his prodigious activity. To his contemporaries, he was noted as a dissenting preacher whose talent for becoming embroiled in bitter sectarian battles was extraordinary. In his search for the truth, Priestley constantly trampled somewhat tactlessly upon the beliefs of the most influential people of the day and then wondered why they attacked him. It must be said in justice to him that he accepted these attacks calmly and even welcomed them. He had an uncommonly strong belief that the truth would, indeed, prevail and that the duty of the honest pursuer of it was to start as many arguments as possible, for only then would all points of view have a chance to be presented. If one adds to this love of argument a keen mind and a universal curiosity, some of Priestley's literary productivity can be accounted for. The rest followed from the fact that, bursting with ideas as he was, he never took time to rewrite anything. From the theological pamphlet to the history of electricity, everything was composed at white heat and delivered to the printer. Thus it was inevitable that careless errors and contradictions crept into his work, but this fact is compensated for by the feeling, as one reads, that here, literally, is a man at work before you.

From the Priestley collection in the Pattee Library at Pennsylvania State University, Ira V. Brown has selected a representative sample of Priestley's writings. The volume begins with Priestley's autobiography and closes with a moving section on his views of the One True Church. Priestley's scientific work is represented by selections from *The History and Present State of Electricity and Experiments and Observations on Different Kinds of Air*.

Brown has done his editorial work well. The selections represent the full spectrum of Priestley's mind. Each section is introduced by a modest paragraph or two, including basic bibliography, which serves to place what follows in the perspective of Priestley's total achievement.

The book is handsomely produced and may be strongly recommended as an introduction to the mind of one of the most interesting individuals of the 18th century.

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Polish Translation

Introduction to Set Theory and Topology. Kazimierz Kuratowski. Translated from the revised Polish edition by Leo F. Boron. Pergamon, London, 1961; Addison-Wesley, Reading, Mass., 1962. 283 pp. Illus. \$6.50.

This elegant volume is an English translation of the revised Polish edition of the author's basic textbook on set theory and topology. These two related subjects permeate all of modern mathematics, and training in them is an indispensable part of the education of every mathematician. As an introduction to these subjects, this book is an excellent text for advanced undergraduates or beginning graduate students.

The first eight chapters deal with set theory. The material covers elementary propositional calculus, the algebra of sets, functions, the power of a set, cardinal numbers, ordering relations, and ordinal numbers. The first approach is that of naive set theory, but in due course the axioms of set theory are introduced. The emphasis, however, is on the facts of set theory, not on its foundations. Proofs are given for all but the most sophisticated theorems of set theory.

The fundamental ideas of general and algebraic topology are included in the remaining 14 chapters. With an eye to the important applications of topology to analysis, the author restricts himself to the study of metric spaces, although some of his definitions apply to spaces of greater generality. After defining metric spaces, he discusses limits, convergence, and the properties of closure, open and closed sets, dense sets, and Borel sets. Next come the ideas of continuity and homeomorphism.

Beginning with chapter 13, the treatment is gradually restricted to more specific spaces, such as separable, complete, compact, connected, and locally connected spaces. American readers should note that *compact* means *sequentially compact* and that *bicompact* is used for spaces with a finite covering. Since the author is dealing primarily with metric spaces, however, there should be no confusion. Chapter 19 is a brief introduction to dimension theory.

Algebraic topology appears in chapters 20 and 21, in which the essentials of polyhedral homology are developed. Applications include the Brouwer fixed point theorem and an existence theorem in differential equations. Chapter 22 treats separation properties of the plane, and it includes a detailed proof of the Jordan curve theorem.

Applications to analysis appear in most chapters, and there is an excellent supply of exercises.

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Nuclear Physics

Rutherford Jubilee International Conference. *Proceedings.* J. B. Birks, Ed. Academic Press, New York, 1961. 856 pp. Illus. \$32.

The Rutherford Jubilee International Conference was held at Victoria University (Manchester, England) from 4 to 8 September 1961 to commemorate Rutherford's 50-year-old discovery of the atomic nucleus and the formulation of the Rutherford scattering law. The 22 invited papers and 197 contributed papers cover topics of current interest in nuclear structure, scattering, dynamical reactions, and radioactive decay. This volume will be of primary interest to nuclear physicists, but several of the

invited papers are suitable for a more general audience. In particular, W. A. Fowler's discussion of Rutherford and nuclear cosmochronology provides an excellent review of methods for evaluating the age of the universe, S. Devons considers the limitations and needs in instrumentation for nuclear physics, while papers by H. P. Noyes and R. E. Peierls present a nice summary of some of the current ideas concerning nuclear forces.

The reproduction of discussions that followed the formal papers is an extremely valuable feature of conference proceedings, and it is good to see that they are recorded in this volume. This fact alone would rate the book high on the list for nuclear theorists, and the discussions also provide an excellent opportunity for graduate students to sense something of the excitement and controversy present in this field of physics.

Unfortunately the excessive cost of these proceedings may severely limit their distribution. Graduate students in particular will probably not be able to afford them. I have fond memories of the times when such reports were distributed in mimeographed form, with paper covers, and at a nominal price.

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Contrasting Points of View

Theoretical Inorganic Chemistry. M. Clyde Day and Joel Selbin. Reinhold, New York, 1962. xiv + 413 pp. Illus. \$12.

Introduction to Advanced Inorganic Chemistry. Philip John Durrant and Beryl Durrant. Wiley, New York, 1962. xv + 1171 pp. Illus. Plates. \$15.50.

During the last decade, most authors of inorganic chemistry texts have attempted to cover both theoretical and descriptive aspects of the subject. M. Clyde Day, Jr. and Joel Selbin (Louisiana State University), who feel that "it is not possible to adequately treat the theoretical side with only a portion of [a] . . . textbook," have written a short and well-conceived book, *Theoretical Inorganic Chemistry*, treating fundamental principles, with only a minimum of descriptive chemistry and intended for an advanced undergrad-

uate or a first-year graduate course. The authors are to be commended for devoting large sections to historical material, not only for humanistic reasons but also to provide a greater appreciation for theoretical concepts. Although the volume is comparable to Gilreath's *Fundamental Concepts of Inorganic Chemistry* (but written on a much higher level), it is unfortunately rendered less useful by the lack of problems or exercises. Nevertheless, instructors of one-semester inorganic courses, in which there is little time for descriptive chemistry, will do well to consider using this text.

On the other hand, when authors decide to include descriptive chemistry, they are faced with so many fascinating and diverse substances and phenomena that the initial and extremely challenging problem is that of selecting, from among these myriad items, those that convey the variety but do not obscure the underlying unity. *Introduction to Advanced Inorganic Chemistry*, a truly encyclopedic work intended to cover "the whole range of the subject up to the point beyond which its study is best followed in monographs and reviews," contains a staggering amount of material, much more than any student can master even in a full-year course. The first third of the book is devoted to the mathematics and physics that are basic to chemistry—for example, wave mechanics and atomic, molecular, and resonance spectra. The treatment is much more thorough than is customary in inorganic texts; in fact, the theoretical section in this volume is longer and more advanced than in Day and Selbin. The Durrants claim that "The mathematical treatment is kept simple," while Day and Selbin admit that their mathematical level "is somewhat higher than is customary in an inorganic textbook." Each reader will have to decide whether the Durrants are using a characteristic British understatement or whether this is a striking illustration of the difference in level of mathematical preparedness expected of English and American students.

The larger part of Durrant and Durrant treats descriptive inorganic chemistry in the light of the theoretical concepts previously discussed. The selection and organization of a tremendous amount of material has been handled in a masterful, systematic, and meticulous fashion. In view of recent accelerated activity in transition metal

chemistry, one wishes, however, that the authors had achieved a better balance between transition and nontransition elements.

I do not believe the book will be widely used in this country as a text, but it will take its place as a reference work, complementing Sidgwick's *The Chemical Elements and Their Compounds* (1950), which it resembles in scope and comprehensiveness. Only its modest references and index and its neglect of a few elements (inert gases, Fr, Ra, and At) detract from its value as a reference book.

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Karl Compton Lectures

The Universe. Otto Struve. Massachusetts Institute of Technology Press, Cambridge, 1962. ix + 159 pp. Illus. \$4.95.

This attractive little book is based on the Karl Compton lectures in astronomy presented by Otto Struve at Massachusetts Institute of Technology in November 1959. The six main topics covered are the origin and evolution of the solar system (34 pages), stellar evolution (35 pages), discovery and exploration of galaxies (24 pages), radio astronomy (25 pages), binary and variable stars (24 pages), and man and the universe (14 pages). There are 82 figures in the text. The standard of typography and illustration is high.

As usual, Struve's presentation is clear, lively, and interspersed with personal anecdotes and reminiscences. Much of the material has been presented many times in the innumerable books on astronomy that have flooded the market during the past few years; this is probably unavoidable, and it is not a serious defect since the intended audience is junior students and interested persons working in other disciplines.

The three best chapters, it seems to me, are those on the solar system (chapter 1), stellar evolution (chapter 2), and binary and variable stars (chapter 5). Chapter 3, on the discovery and exploration of galaxies, is mainly of historical interest.

In the final chapter, the author may have carried too far his thesis that Sputnik "completely changed the sci-