

**Introduction to Advanced Inorganic Chemistry.** By P. J. DURRANT and B. DURRANT. John Wiley and Sons, Inc., 440 Park Avenue South, New York, N. Y., 1962. xv + 1171 pp. Price, \$15.50

The impression gained by the reviewer on first examination of this book was favorable since the book includes discussions of many topics of current interest to inorganic chemists as well as to chemists generally. It is, indeed, unfortunate that this favorable impression does not hold up in the light of careful examination of the book. This work is replete with errors, half-truths, ambiguities, and undesirable omissions. The reviewer became convinced of this upon reading the part of the book most closely allied to his field of interest, *viz.*, the section on the chemistry of the nitrogen family of elements. Not being willing, however, to base such an adverse review on his own reactions, the reviewer has consulted several other inorganic chemists at major research institutions in this country and abroad and found a uniformly adverse reaction and a unanimous agreement that this is not a dependable presentation of modern inorganic chemistry. It is customary to conclude an unfavorable review with the statement that "nevertheless, this book will be a valuable addition to the chemist's professional library." The reviewer cannot say this in this instance, for it is his belief that it would be undesirable for a chemistry student, teacher, or research worker to use this volume as a guide or as a basis for his work.

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**Inorganic Reactions and Structure.** Revised Edition. By EDWIN S. GOULD. Holt, Rinehart and Winston, 383 Madison Avenue, New York 17, N. Y., 1962. xiv + 513 pp. 16.5 × 23.5 cm. Price, \$8.50.

Reference is made to reviews of the First Edition (*Chem. Eng. News*, March 5, 1956, p. 1141, and *J. A. Chem. Soc.*, **77**, 5772 (1955)) without recommending the accompanying educational philosophies. With deserved praise the first listed review put the case fairly for the book and for the revision. The second was an accurate and detailed appraisal, though unnecessarily critical.

Most of the revision has been accomplished by inserting new information and viewpoint into the text at appropriate places. Examples of changes: carbon is used as the atomic weight standard; in Chapter 9 on bond properties a rewrite of the electronegativity abandoned the principle of electroneutrality and the discussion of the van der Waals radius was improved; material on carbonyls and other complex compounds has been modernized factually and expounded theoretically in terms of ligand field theory. Throughout, the examples of compounds and reactions have been chosen with skill to be representative. The questions have been rearranged to an order of increasing difficulty and there are a few new ones. The best part of the revision is Chapter 23, a section on inorganic reaction mechanisms, excellently done.

The book is not perfect. Some might select different examples and reactions, object to such items as neglect of the polymerization of water, or use of the Bohr atom, even though only as a straw dummy. Others may join the reviewer to deplore development of covalent bonding through use of watered-down quantum chemistry, which confuses rather than illumines and encourages in students a glib loquacity about matters they really do not understand.

There escaped the proof-reader a few imperfections of text, p. 154, and lapses from good usage, the latter mostly generated by need to summarize. On the whole, however, the text is rather free from errors of this or other kind. Notably, it is written in a lively style with an absence of pedantry and monotonous repetition.

The book is to be recommended as a text for students admitted

to college with advanced standing in chemistry who need an introductory intellectual task prior to their blending into the normal course offerings. In the same vein it should be useful as text material for a late-freshman or sophomore honors course, or as an outline for an honors tutorial program. Finally, it should be of prime usefulness as instruction and refreshment for any one interested in a concise, well balanced factual account of what is inorganic chemistry. Included are most students, because proliferation of courses is unrealistic, and most knowledge should and must be privately gained.

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**Paramagnetic Resonance.** By GEORGE E. PAKE. W. A. Benjamin, 2465 Broadway, New York 25, N. Y., 1962. 205 pp. 15 × 23 cm. Price, \$4.95, paperbound; \$6.95, clothbound.

In view of the increasing interest being shown in the applications of paramagnetic resonance to problems in chemistry and physics, there has been a definite need for an introductory book on the subject. In his preface, the author states that his intention was to write an introductory book suitable for "students or scientists in any specialization who possess in their background the equivalent of the usual one-year course in quantum mechanics." He has done well in this respect. The book is indeed introductory in scope and content and requires no more than an elementary knowledge of quantum mechanics.

The book is a well written introduction to the principles and theories of paramagnetic resonance but is sketchy concerning applications and techniques of measurement. There is one chapter concerning applications of paramagnetic resonance but these deal mainly with problems in the area of physics. There is very little discussion about the paramagnetic resonance of free radicals and none about the observation of excited triplet states in aromatic molecules. Further in the chapter on crystal fields and the effective spin Hamiltonian there is no mention of how the nature of the bonding between the metal ion and its ligands alters the parameters of the spin Hamiltonian. This is not to be taken as a criticism of the work but rather as a warning not to expect too much from the book, which is definitely introductory in scope. For the chemist interested in learning about paramagnetic resonance it should serve as an excellent introduction to the principles and will furnish the background necessary to understand the original literature on applications of paramagnetic resonance to chemical problems.

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**Inorganic Isotopic Syntheses.** Edited by ROLFE H. HERBER, Rutgers, The State University, New Brunswick, New Jersey. W. A. Benjamin, Inc., 2465 Broadway, New York 25, N. Y. 1962. vii + 249 pp. 15.5 × 23.5 cm. Price, \$7.50.

For those interested in synthesizing compounds containing H<sup>2</sup>, H<sup>3</sup>, N<sup>15</sup>, O<sup>18</sup>, P<sup>32</sup>, Cl<sup>36</sup>, or I<sup>131</sup>, this collection of papers by different authors is intended to do two things. One is to discuss certain common syntheses in such detail as to make further recourse to the literature unnecessary, and the book is successful in this. The other aim is to provide a bibliography for the less common syntheses involving these nuclides and to evaluate the relative merits of the different methods. The bibliography appears to be excellent and makes the book a valuable addition to the literature. Unfortunately, the lack of critical evaluation in most cases does lessen the utility.