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 undergraduate 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-

ence of astronomy" (p. 145) and that "the present Cold War is certainly being waged by astronomers" (p. 148). While few will deny the great promise of space telescopes or the fringe benefits that the Cold War bestows on some aspects of astronomical science, it would be difficult in any detailed argument to offer more than a minority of affirmative cases to support Struve's thesis. One must agree fully with Struve, however, when he remarks: "If we have been timid in the past, we are now making up for the lost time by plunging without concern into the most daring speculations" and further "it is today difficult to distinguish between science and science fiction." This, unfortunately, is one of the unquestionable side effects of the "Space Race" and the "Cold War" on astronomy. Let us hope that it is only a passing fever.

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Notes

Drug Identification

Felix Amelink's **Rapid Microchemical Identification Methods in Pharmacy and Toxicology** [Netherlands University Press, Amsterdam; Interscience (Wiley), New York, 1962. 127 pp. $9] describes microscopic tests with which most available sulfonamides, sulfones, barbiturates, and hydantoins may be identified. A small amount of the material is placed on the corner of a glass slide, appropriate solvent is added, and a drop of reagent is applied so that the two drops barely touch. Crystallization is encouraged by heating and by scratching with a glass rod. The crystals are then identified by color, form, size, polarization, and comparison with drawings of typical crystals. By using nine reagents for the sulfonamide-sulfone group and five for the barbiturate-hydantoin group an experienced observer can make positive identification. The details of the method are described in several brief chapters (the first 35 pages) and the systematic criteria of identification are given in the remaining 90 pages.

Chemists whose work includes the identification of drugs in these groups should find the book an extremely useful companion to the author's similar work on the identification of alkaloids. The compounds that can be identified are described under a mixture of trade and nonproprietary names, many of them unfamiliar in the United States, a difficulty only partly remedied by the list of "synonyms."

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Insect Taxonomy

The Beetles of the Pacific Northwest. *Pselaphidae and Diversicornia I* (University of Washington Press, Seattle, 1962. 512 pp. $11.50) is the third part of Melville Hatch's ambitious and laudable plan to make recognizable the 4000 species of beetles of the Pacific Northwest. Only a person with Hatch's broad knowledge of the Coleoptera and his willingness to enlist the invaluable help of others who are specialists in several of the families treated, could make such significant additions to our information on beetles.

This is the largest of the three published parts, and it contains descriptions of 950 species, many of them illustrated in the 66 plates of clear, well-executed drawings. The previously published parts contain descriptions of 660 and 700 species, respectively.

Thirty-six families of beetles are treated in part 3. Among the Diversicornia are groups, such as the Dermestidae, Anobiidae, and Bostrichidae, which contain species that are destructive, and other groups, such as the Cleridae and Coccinellidae, most species of which are beneficial to man. The Coccinellidae in the area covered are a relatively large family, with more than 100 species, and Hatch has appropriately seen fit to mention species recently introduced into the United States as predators of the balsam woolly aphid.

Hatch and the six contributing authors found it necessary to describe numerous new species, with clear designation of holotype and a statement of the place of deposition of the type.

The author and the University of Washington Press are to be congratulated on the fine appearance of this very useful volume. It is appropriate that this and its companion volumes should be published when there is an appreciation of the need for organized information on insect taxonomy.

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New Books

General

Adventure in Giving. The story of the General Education Board. Raymond B. Fosdick. Harper and Row, New York, 1962. 379 pp. $6.50.

After the Seventh Day. The world man created. Ritchie Calder. New American Library, New York, 1962 (reprint). 348 pp. Illus. Paper, 75¢.

American Wildlife and Plants. Alexander C. Martin, Herbert S. Zim, and Arnold L. Nelson. Dover, New York, 1962 (reprint of 1951 edition). 509 pp. Illus. Paper, $2.

Antarctica. Land of frozen time. Roger A. Caras. Chilton, Philadelphia, 1962. 220 pp. Illus. $6.

Archaeology as a Hobby. Virginia J. Fortiner. Hammond, Maplewood, N.J., 1962. 45 pp. Illus. $1.

The Art of Growing. A guide to psychological maturity. Robert E. Nixon. Random House, New York, 1962. 190 pp. $3.95.

Bird Watching as a Hobby. Robert Wells. Hammond, Maplewood, N.J., 1962. 47 pp. Illus. $1.

A Decision Structure for Teaching Machines. Richard D. Smallwood. Massachusetts Institute of Technology Press, Cambridge, 1962. 128 pp. Illus. $4.

D.S.I.R. and Universities and Colleges 1956–60. A report on D.S.I.R. support for research and training in universities and colleges. Department of Scientific and Industrial Research, London; British Information Services, New York, 1962. 240 pp. Illus. Paper, $3.

The Dynasty of Abu. A history and natural history of the elephants and their relatives, past and present. Ivan T. Sanderson. Knopf, New York, 1962. 398 pp. Illus. $5.95.

The Epic of Medicine. Felix Marti-Ibanez, Ed. Potter, New York, 1962. 294 pp. Illus. Until 25 December, $12.50; $15. Twelve chapters reprinted from the magazine *MD*, with a brief preface, notes, bibliography, and index (approximately 15 additional pages).

The Exploration Diaries of H. M. Stanley. Richard Stanley and Alan Neame, Eds. Vanguard, New York, 1962. 229 pp. Illus. $6.

The Great Ideas Today 1962. Robert Maynard Hutchins and Mortimer J. Adler, Eds. Encyclopaedia Britannica, Chicago, 1962. 572 pp. Illus. $8.95.

The Great White Mantle. The story of the ice ages and the coming of man. David O. Woodbury. Viking, New York, 1962. 222 pp. Illus. $4.95.

Index to Scientists. From ancient to modern times. Biographies and portraits. Norma Olin Ireland. Faxon, Boston, 1962. 705 pp. $12.

Intelligent Machines. An introduction to cybernetics. D. A. Bell. Blaisdell (Random House), New York, 1962. 98 pp. Illus. Paper, $1.45; cloth, $2.95.

International Photography Year Book, 1963. Norman Hall, Ed. St. Martin's Press, New York, 1962. Unpaged. Illus.

Knowledge and Wonder. The natural world as man knows it. Victor F. Weisskopf. Doubleday, Garden City, N.Y., 1962. 222 pp. Illus. $4.95.