slide preparation, or inoculation procedures; nor will he learn any of the pitfalls of field plot work or greenhouse tests.

He will, however, find a succinct discussion of each of the genera known to contain species parasitic on plants. Each chapter begins with a brief history of the genus, a general description of its morphology with emphasis on diagnostic characters, a review of publications on the biology and host-parasite relations, and a recommendation for control. The chapter ends with a brief list of references.

As a text for college work in nematology, this book invites comparison with Christie's *Plant Nematodes: Their Bionomics and Control* (1959) and Thorne's *Principles of Nematology* (1961). Christie's book is heavily inclined to plant pathology and Thorne's to nematode taxonomy. Each reflects the experience of a lifetime of work in the field at a time when the nematologist ranged over the entire vast territory of his subject. Neither book is a satisfactory elementary text. Jenkins and Taylor have succeeded in assembling a brief, simple review of some aspects of the subject written in a straightforward manner. It is a useful, but not a sufficient introduction to plant nematology.

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Boron Compounds

Polyhedral Boranes. EARL L. MUETTERTIES and WALTER H. KNOTH. Dekker, New York, 1968. viii + 197 pp., illus. $13.50.

The existence of complete series of polyhedral borane anions and carboranes was not apparent at the beginning of the present decade. A thorough review of this subject has not recently been attempted in a single volume, and consequently this book will be of more than passing interest to research workers in all fields of chemistry. One very strong point in its favor is the emphasis placed upon the many exciting and unsolved problems inherent in the field of polyhedral boranes and carboranes. As extreme examples, the imaginative physical-organic chemist will certainly see the probable utilization of polyhedral borane and carborane substituents as probes for the elucidation of organic reaction mechanisms, and those interested in the structure of electrolyte solutions will find a complete shopping list of novel anions available for further experimentation. In addition, this book could amply serve as a textbook in a short special-topics course for graduate students in inorganic chemistry.

The authors have expounded their own views on reaction mechanisms and the thermodynamic properties of the best-characterized polyhedral species. This is fitting, since a good deal of the original work was carried out in their own laboratory. Their attempt to bring the reader up to date is illustrated by the inclusion of a final chapter which deals with research carried out while the manuscript was in preparation. An underlying theme is the necessary comparison of polyhedral borane structures with the structures of transition metal coordination compounds and the thermal rearrangement of the former species. Synthesis methods are succinctly described.

The book is completely documented, and amply illustrated. Certain drawings have been somewhat stylized or otherwise distorted, but the serious reader will find no objection to them. The style and organization of this little volume should allow the uninitiated to develop a good understanding of this very new topic with a minimum of frustration. If this indeed proves to be the case we may expect to see the profitable application of polyhedral boranes to many other fields of chemical science.

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A Problem in Theoretical Physics

The Many-Body Problem in Quantum Mechanics. N. H. MARCH, W. H. YOUNG, and S. SAMPANTHAR. Cambridge University Press, New York, 1967. x + 459 pp., illus. $14.50.

Several different branches of theoretical physics can claim significant advances in the past decade and a half as a result of the development of powerful and sophisticated methods of treating the quantum-mechanical many-body problem. But aside from the common difficulty in treating a system of many interacting particles, the form and even the statement of the problem are different in different areas. Nuclear physicists are usually interested in the energy of a particular state, and their problems have to do with the complicated forces and large degeneracies. Atomic physicists know the forces, but have to deal with degeneracies and a relatively small system. Solid-state physicists, on the other hand, are frequently less interested in ground-state energies than in the spectrum of the elementary excitations and in the temperature-dependent response of a large system to external stimuli. Naturally enough, then, most books on many-body theory either have been primarily concerned with formalism or with treating in depth only one branch of the problem, or have combined a discussion of formalism with a collection of reprints of important papers dealing with specific problems.

The present work attempts to include all the areas of physics in which substantial progress has been made on the many-body problem. The authors' intent is "to provide, for the reader who [wants] to learn about the many-body problem, an account both of the methods used and the physics which emerges, within a single cover," and there are chapters on single-particle approximations, atoms and molecules, second quantization, many-body perturbation theory, Fermi fluids, nuclear matter, superconductivity, many-boson systems, grand partition functions, and Green functions, together with ten appendices. There are several problems provided with each chapter and a serviceable index at the end.

This treatment would probably be rather difficult for a student with no previous knowledge of many-body theory. Everything is here, but because of the large scope of the book the introductory chapters are necessarily brief and the discussion of basic concepts tends to be a bit superficial. However, the book is highly recommended for a physicist who has some knowledge of the formalism or for one who has worked in one area and wants to learn of techniques used in others. For such a reader, the chapters are self-contained and the notation is standard. A typical section contains a brief discussion of the physical picture, an outline of the appropriate calculation with important references given directly in the text, and a presentation of the results. There are strong sections on Fermi fluids and many-boson systems. Perhaps the weakest chapters are those on atoms and on nuclear matter, in