

the more rigorous treatments such as that in "Group Theory and Quantum Mechanics" by M. Tinkham (McGraw-Hill Book Co., New York, N. Y., 1964).

The book by Jaffé and Orchin starts with a chapter on symmetry operations, one on point groups, and one on the principles of group theory. The next chapter treats applications to molecular orbital theory, molecular vibrations, and spectroscopic selection rules and polarization. A final chapter is devoted to crystal symmetry. The appendices give the character tables for all common point groups and some other tables concerned with symmetries of molecular vibrations.

This book has many good points. One of the most valuable things is the treatment of space groups and crystal symmetry, a topic neglected in many books including Cotton's. Going along with this is the introduction of both the Schönflies notation commonly used for molecular properties and the Hermann-Mauguin notation usually used by crystallographers. Stereographic projections are also employed in illustrating point groups and space groups. These factors will make this book a valuable starting point for those whose use of group theory will include applications to the solid state. Another particularly interesting section is the discussion of the relationship between symmetry operations and optical activity. Few errors were noted, and they were minor. The style is clear and understandable.

On the debit side, many inorganic chemists will find this book much less useful than "Chemical Applications of Group Theory" because it lacks the specific applications to hybrid orbitals and ligand field theory treated so well by Cotton. The authors' determination to emphasize the use of group theoretical methods

without mathematical complications is perhaps carried too far, as the book lacks even a precise definition of a group, or of terms such as representation or class of operations. Although it is quite true that one can often use group methods without knowing these definitions, it seems unfortunate to this reviewer that they should be omitted from a book of this type.

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## BOOKS RECEIVED

November 1965

- D. M. ADAMS and J. B. RAYNOR. "Advanced Practical Inorganic Chemistry." John Wiley and Sons, Inc., 605 Third Ave., New York 16, N. Y. 1965. vii + 182 pp. \$6.00.
- BERTIL ARONSSON, TORSTEN LUNDSTROM, and STIG RUNDQUIST. "Borides, Silicides and Phosphides." John Wiley and Sons, Inc., 605 Third Ave., New York 16, N. Y. 1965. vii + 120 pp. \$4.25.
- GEORGE A. OLAH, Editor. "Friedel-Crafts and Related Reactions. Volume IV. Miscellaneous Reactions." John Wiley and Sons, Inc., 605 Third Ave., New York 16, N. Y. 1965. v + 1191 pp. \$45.00.