for the concepts at the basis of the steps given in the remainder of Chapter 3. Judging from questions I've been asked, I tend to think my misgivings were justified. Such a small thing as the inclusion among the examples of a representation containing a repeated irreducible representation and a two-dimensional irreducible would have helped. Despite this shortcoming, the treatment of the *application* of group-theoretical methods is lucid, and could be handled easily by most first-year graduate students.

This reviewer is sorry that the treatment of $n \rightarrow \pi^*$ transitions is so brief, because of their importance in molecules of biological interest. To discuss these, however, the author would have had to go somewhat deeper into electronic structure theory; perhaps this was his justification for the very short coverage.

It is always possible to find some little points to criticize in a review, like the omission of favorite references of the reviewer. The work of D. Z. Robinson on the dipole moment of HCl as a function of hybridization, the correlation of bond lengths and hybridization carried out by Costain and Stoicheff, and the contribution of Moffitt to the polynuclear aromatic hydrocarbon problem all could have been cited to advantage in the text. Another peccadillo: I object to the use of the expression "non-crossing rule" in the context of aromatic substitutions (p. 347). This expression has a well defined meaning in the treatment of approximate and exact electronic states, but is really out of place in the discussion of early *vs.* late transition states in the substitution reactions of non-alternant hydrocarbons.

I noticed that one level is missing in Fig. 8.11 on p. 224, and to my glee, found a pentavalent carbon atom in the pyracyclene molecule on p. 291. Furthermore, I suspect the author of playing a private joke (and admire him for it) when he uses Fig. XXIII and XXIV on p. 448 to represent a charge transfer-complex and an ion pair, respectively.

This reviewer enjoyed reading the book and, in addition to learning a good bit of physical organic chemistry from it, expects it to be a valuable reference, for the wealth of data as well as the textual content and footnotes. A book like this, appearing when it does, already must give its author some feelings of uneasiness; for, certainly, it will stimulate enough work in a very short time to set the poor man to writing a new edition.

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Kupfer, Teil B Lieferung 2, System Nummer 60, 8 Auflage, Gmelins Handbuch der Anorganischen Chemie. [Copper, Part B Section 2, System Number 60, 8th Edition, Gmelins Handbook of Inorganic Chemistry.] Verlag Chemie, G.m.b.h., Weinheim/Bergstrasse, 1961. 352 pp. 17 × 24.5 cm. In German. Price, $58.00.

This volume is a continuation of the discussion of compounds of copper started in Teil B Lieferung 1. It follows the usual pattern established for the Gmelin series.

A short section discussing the copper–boron system is followed by one pertaining to the binary compounds with carbon. In line with the Gmelin practice, the next section presents the ternary and more complex compounds of carbon, major emphasis being given to the copper(II) carboxylates (about 200 pages). The last 100 pages contain the discussion of other binary and ternary compounds of copper and silicon, phosphorus, arsenic, antimony, and bismuth.

The available information, in some cases up to 1958, is presented in the lucid manner for which Gmelin is so famous. Both the physical and chemical data are described in detail and graphs and diagrams are liberally used throughout, resulting in increased effectiveness of this volume. Structural diagrams are included in many places.

One minor drawback, in this reviewer's opinion, is the absence of a special section on complex compounds of copper(II); these are discussed in the usual Gmelin manner when the compounds of particular coördinating agents are described.

A Table of Contents and marginal annotations in English are of great help.

This volume is a most welcome addition to the Gmelin series and adheres to the excellent standard set previously. It should be on the shelf of every chemistry library; it is highly recommended as the most valuable source book for an investigator interested in copper(II) compounds.

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