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inorganic or organic chemist who is engaged in coordination chemistry or related fields.

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Reactions of Coordinated Ligands and Homogeneous Catalysis. Advances in Chemistry Series, No. 37. Edited by DARYLE H. BUSCH. Preface by JOHN C. BAILAR, JR. The American Chemical Society, Washington, D. C., 1963. 15.5 × 23.5 cm. vii + 255 pp. Price, \$7.00 paperback.

"Reactions of Coordinated Ligands and Homogeneous Catalysis" is a collection of eighteen papers, seventeen of which were selected from a symposium which was held at the 141st National Meeting of the American Chemical Society in Washington, D. C., from March 20 to March 29, 1962. Professor Busch's opening lecture on the same topic is included as an introductory paper. Several very interesting papers from the symposium are missing in this record and several are greatly expanded and much more complete than they were at the time of the original presentation.

A wide range of subject matter is included in this book, as it was in the symposium. On the one hand we have the excellent papers of Myron L. Bender and Gunther L. Eichhorn on metal ion catalysis in nucleophilic organic reactions and in biological systems, and on the other, the more traditionally inorganic papers such as "Oxidation of Oxalato Complexes of Chromium(III) by Cerium(IV) in Aqueous Sulfuric Acid," by Teggin, *et al.* It seems to this reviewer that this variety is one of the attractive features of the book as it was in the case of the symposium. Thus, persons working in various fields, but interested in reactions of coordinated ligands, were brought together at the meetings and surveys of a wide spectrum of efforts are included in the publication.

The introductory survey by Daryle H. Busch defined the symposium and gives the reader a brief resume of work in each of the areas to be covered in the papers which follow.

Some of the papers are of the review type and give a general description of recent advances in a given field of interest. The paper on metal-cyclopentadienyls and metal-arenes by Marvin D. Rausch is an example. It provides an excellent survey, which is very useful to persons not currently active in metal-cyclopentadienyl or arene chemistry. Other papers are specific and are devoted to reporting some recent experiments and new results in a specialized area. The paper by McCarley, *et al.*, on the reaction between pyridine and pentavalent niobium (which it reduces) and tantalum (which it does not) represents a report of new information and experimental results, although most of this work has now appeared in the literature (*Inorg. Chem.*, 2, 540, 547 (1963)).

Some of the authors have provided extensive and useful bibliographies, others cite only a few salient articles. Those giving specifics and new results, of course, have the shorter lists.

The inevitably few typographical errors appear, but by and large they are obvious and the correct meanings are clear. For example, in the second paper by Busch A_{∞} comes out as A_{∞} and the abbreviation for liter is L. In the paper by Leussing and Tischer m_{μ} appears as M_{μ} and in McCarley, *et al.*, M and X, meaning metal and halogen, are italicized in Table I. An incorrect name is used repeatedly in the paper "Catalytic Hydrogenation by Pentacyanocobaltate(II)," wherein $\text{Co}(\text{OH})\text{CN}_5^{3-}$ is called hydroxypentacyanocobaltate(III): hydroxo is the correct name for ligand OH^- (*J. Am. Chem. Soc.*, 82, 5539 (1960)). The paper by Leussing and Tischer is marred by missing and misplaced parentheses in many of the formulas.

This reviewer finds that most of the papers are clear and well written and particularly would like to applaud the writing of Bender, Eichhorn, and Rausch. On the whole this is an interesting, if incomplete, record of a very successful symposium and it should be useful as supplementary reading in a course in coordination chemistry and as an instructive evening's reading to the

Mass Spectrometry: Organic Chemical Applications. By KLAUS BIEMAN, Massachusetts Institute of Technology. McGraw-Hill Book Co., Inc., 330 West 42nd Street, New York 36, N. Y. 1962. xii + 370 pp. 15 × 22.5 cm. Price, \$13.75.

This very well written book is, as stated by the author, clearly written by an organic chemist with the aim of acquainting other organic chemists with the usefulness of mass spectrometry in solving simple and complex problems in organic chemistry. A book specifically designed to do the same thing for inorganic chemists has not yet appeared. However, the principle of applying mass spectrometric techniques as presented here, with or without the use of isotopically substituted molecules, should be of interest to inorganic chemists. Those particularly concerned with problems of structural analysis can read that portion of the book with considerable profit.

In general, the book fulfills the author's aim in an admirable fashion. The major portion includes the chapters on empirical observations and conclusions concerning the nature and characteristics of mass spectra of organic molecules, the methods for simplifying complex mass spectral data and identifying components of structure, the effects and usefulness of isotopically labeled molecules, and the several chapters describing spectra and structural identification of fatty acids and related substances, amino acids and peptides, alkaloids, steroids and related substances, and a few miscellaneous classes. The author is one of the leading experts in the application of mass spectrometry to these areas and presents interesting graphical examples with explanatory text to illustrate the usefulness (and difficulties) of the method. A commendable effort is made to include previously unpublished results (at time of printing), particularly from the author's laboratory.

The author elects to treat the two chapters on instrumentation and operating techniques in a brief and sometimes superficial fashion, giving the impression that the purchase of a reliable instrument is all that is required for the successful pursuit of projects such as he describes. It is natural for the author to minimize his considerable skill and that of his colleagues. However, the reader should be cautioned.

A more specific but equally significant lapse is the general reference to relative nuclidic masses of C^{12} , O^{16} , N^{14} , etc., as "atomic weights." This leads to statements, such as on p. 3 of the Introduction, "... the seemingly straightforward interpretation of the nature of a peak by simply adding atomic weights..." The "atomic weights" table given on the back cover actually refers to the 1961 *Nuclidic Mass Table* by Konig, Mattach, and Wapstra. As inorganic chemists will appreciate, the mass spectrometer separates the various nuclidic masses (except for anisotopic elements) and permits the measurement of their relative abundances so that atomic weights of the element can be calculated, if desired.

This reviewer saw no typographical errors except possibly for the use of "J" as the symbol for iodine in the above table. The many complicated structural formulas could not be examined expertly, but errors if any must be few. There are fewer literature references than one might expect in such a work. This is due in part to the specific and very modern nature of the subject and in part to the author's efforts to include much of the up-to-date, previously unpublished work. The general arrangement of the book is good and except for the above criticisms makes very pleasant and instructive reading.

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