Additions and Corrections

Theoretical Study of the Reactions of Pentacoordinated Trigonal-Bipyramidal Compounds: PH_5, PF_5, PF_4H, PF_3H_2, PF_4CH_3, $PF_3(CH_3)_2$, $P(O_2C_2H_4)H_3$, $P(OC_3H_6)H_3$, and $PO_5H_4^-$ [*J. Am. Chem. Soc.* **1992**, *114*, 16-27]. H. WASADA* and K. HIRAO

An important report[1] on the stability of pentacoordinated phosphorane has come to our attention, which should have been cited in our reference. In this report the concept of equatophilicity, i.e. the less electronegative group prefers the equatorial position to the apical position, which is similar to our equatoriphilicity, is used to discuss the stability of trigonal bipyramids. We are grateful to Professor K. Morokuma for bringing this work to our attention.

(1) (a) Morokuma, K.; Mathieu, S.; Dorigo, A. E. *The 1989 International Chemical Congress of Pacific Basin Societies*, **1989**, phys590. (b) Mathieu, S.; Morokuma, K. *Annu. Rev. Instit. Mol. Sci.* **1990**, 18.

Book Reviews

Specialist Periodical Reports. Volume 12B. Electron Spin Resonance. Edited by M. C. R. Symons (University of Leicester). The Royal Society of Chemistry: Cambridge, England. 1991. xii + 258 pp. £105.00. ISBN 0-85186-891-6.

Specialist Periodical Reports was developed to provide research workers with comprehensive coverage in specific research areas. The *Electron Spin Resonance* (ESR) series has provided such coverage since Volume 1 in 1973, covering literature from January 1971. The field of ESR continued to grow, and in 1986, with Volume 10, the ESR series was divided into two separate books. Generally, the A series covers organic and bioorganic ESR, while the B series covers inorganic and bioinorganic ESR. However, certain topics could be placed equally well in either volume. The selection of topics has been well chosen to keep ESR spectroscopists abreast of the current literature. In addition to standard topical areas, reviews of important areas that are less proliferated with publications are included from time to time. In Volume 12B these are ESR Studies of Zeolites, ESR Imaging, and Laser Magnetic Resonance, last covered in this series in Volume 8. The usual review of theoretical aspects of ESR was postponed for 1 year. ESR literature is covered through mid-1990.

Volume 12B has 6 chapters, with five more appearing in Volume 12A. Chapter 1, Transition Metal Ions, covers spectrum analysis, phase transitions, paramagnetic ligands, mixed valence systems, three-dimensional exchanging systems (called extended systems in this chapter), semiconductors, superconductors, and the standard d^1 to d^{10} transition metal ions. The authors who have taken over this topic have done a good job in keeping the format similar to recent reviews but have also added some topics. These new subjects are provided with some background information. The older topics are not as well linked to previous reviews as in the earlier volumes, probably because of the change in authorship. This is compensated by the fact that the authors provide coverage beyond merely ESR with material and analysis that is relevant to the problem area.

Laser Magnetic Resonance (LMR), Chapter 2, was last reviewed in *Specialist Periodical Reports* when it was a fairly new technique. The last published review of this research area appeared in 1985. Therefore, this is a very timely addition to the series. This chapter provides comprehensive coverage of the results of measurements on atoms, diatomic hydrides and non-hydrides, triatomic hydrides and non-hydrides, and larger radicals. Recent theoretical work, experimental developments, and applications of the technique, principally to kinetic studies, are also covered. Current LMR work is compared to earlier work using the other kinds of spectroscopy, and background information is provided so that a non-specialist reader can appreciate the significance of the work.

Chapter 3, ESR of Transition Metal Ions in Zeolites, is new to *Specialist Periodical Reports*, but is an area that has had much attention. The literature from 1985 is covered. Short background sections covering zeolites and methods of introducing metal ions into zeolites are followed by a systematic review organized by transition metal. Some of the difficulties and ambiguities of various studies are pointed out.

Metalloproteins, covered in Chapter 4, has been a continuing topic in *Specialist Periodical Reports*. As in previous volumes, the coverage is very thorough and readable. The author includes numerous studies by non-ESR methods that are relevant to the specific metalloproteins.

Imaging by ESR methods, reviewed in Chapter 5, is a topic that is receiving progressively greater interest and is new to *Specialist Periodical Reports*. The chapter provides a good qualitative review of the area with extensive documentation, but detail that would enable a reader to select among the myriad references for particular information is not given. The topics covered include approaches to ESR imaging, instrumentation, and applications to a variety of problems of current interest, such as radiation defects, materials science, and living systems.

Inorganic and Organometallic Radicals, Chapter 6, continues from the previous volume (11B). Literature from July 1988 to August 1990 is covered. The chapter is broken into the following topics: Trapped and solvated electrons; atoms and monatomic ions; diatomic, triatomic, tetraatomic, and pentaatomic radicals; other (larger) radicals; spin trapping; and transition metal carbonyl radicals. This chapter maintains good continuity relative to earlier reports that have been published, and the figures and diagrams are well chosen to explain important issues.

In summary, Volume 12B is an important source of information on ESR. It is more than merely bibliographic information because it contains information that links work from mid-1988 (or earlier for some chapters) through mid-1990 to earlier work, gives significance to the published information, and, with its 1596 references, is an excellent directory to the primary sources. Its high cost, while commensurate with its high value, precludes many individuals form obtaining personal copies, but it is an important addition to those chemistry and physics libraries able to afford it.

Ira B. Goldberg, *Rockwell International Science Center*

Factor Analysis in Chemistry. Second Edition. By Edmund R. Malinowski (Stevens Institute of Technology, Hoboken, NJ). Wiley-Interscience: New York. 1991. xii + 350 pp. $55.00. ISBN 0-471-53009-3.

Every head or a chair of a chemistry department should read the first (Introduction) and the last (Additional applications) chapters of this book and then try to answer the following question: Do we have an expert in this field of chemistry, or at least, anyone in my department who is