Coordination Chemistry Reviews, 29 (1979) 85—86

Book Reviews

Organometallic Chemistry, Volume 6, Specialist Periodical Reports. Senior Reporters, E.W. Abel and F.G.A. Stone. The Chemical Society, London, 1978, Price £34.00.

The Specialist Reports of the Chemical Society continue an excellent tradition extending back to 1904. The first Annual Reports were published with the object "... that specialists ... may obtain without difficulty information as to the ... progress in other branches of the subject to which they have not paid special attention". This objective is still being sought by the current series of Annual Reports and even by the series of Specialist Reports such as those on Organometallic Chemistry. For who can deny the need for an outline, even within this special field, of progress in those branches "to which they have not paid special attention"?

In attempting to attain this objective the Chemical Society "invited a number of gentlemen, distinguished for their acquaintance with the several divisions of the subject ... to prepare Reports, and their names attached to the several articles afford a guarantee that the work has been done carefully, judiciously, and accurately". Under the scholarly guidance of the Senior Reporters (Professors Abel and Stone) this guarantee is maintained today for these Specialist Reports. This guidance is obviously quite firm. The subdivision of the subject has remained virtually unchanged throughout the series, as have the names of the "distinguished gentlemen" who have contributed. The number of references (2—3000) scarcely varies (though group III seems to have taken a substantial cut in Vol. 6) and the space used remains remarkably constant. Even the price, in £/page/average salary of chemists is probably not as greatly different from what it was originally in 1904 as it might appear when actually writing one's cheque.

The style remains uniform and much as we have been led to expect from earlier volumes, not excluding even the 1904 volume. It is dry, terse and hovering on the verge of that of the catalogue. This makes steady reading difficult but extensive browsing is frequently exciting. The range of the material covered is so great that it cannot be hoped that the treatment will be at all critical although occasional value judgements do appear in introductory sections. For those who teach, for those who tend to become too closely enmeshed in their own day-to-day research, for those whose browsing through the journals is not as regular or broad as it might be, or for those whose computer-retrieved lists of "profiled" papers lie too long unexplored on their desks, these Specialist Reports are essential. And there are few of us who do not fall into one or more of these categories.

One final reference back to the introduction to the 1904 Reports is instructive. The writer comments that "inasmuch as no Report can be finished by the author before December 31st in each year ... the Reports cannot be in the

hands of the Fellows ... till the early Spring"! This Specialist Report covers the literature for 1976 and the copyright date is 1978. Enough said?

A.J. Poë

Chemically Induced Magnetic Polarization, by L.T. Muus, P.W. Atkins, K.A. McLauchlan and J.B. Pedersen. Reidel, Dordrecht, Boston, 1977, Price U.S. $38.00.

This book is essentially a series of papers on chemically induced magnetic polarization (CIMP) by experts in the fields of both the nuclear effect (CIDNP) and the electronic effect (CIDEP). There is a good balance of theory and experimental application. The format and arrangement of the book are quite adequate. A brief general introduction is given (Chapter 1), with basic principles of CIDNP illustrated by investigations of diacyl peroxides (Chapter 2) and an outline of the experimentally more difficult CIDEP (Chapter 6). The rest of the book explores specific phenomena, experimental approaches, mechanisms and specific applications of the techniques. There is a section (Chapter 20) on systems of biochemical interest, in particular photochemical charge transfer reactions involving chlorophyll and its derivatives. The final paper (Chapter 24) also concerns itself with photosynthesis and discusses CIDEP in photosynthetic bacteria. An investigation of radical-producing reactions between alkyllithium reagents and organohalides (Chapter 15) illustrates some of the historical development of CIDNP and its applicability to organometallic reaction mechanisms. An interesting marriage of flash-photolysis and electron spin resonance (Chapter 8) allows high resolution identification of primary radicals produced by the flash. This technique is shown to be complementary to CIDNP in mechanistic studies of radical reactions. In Chapter 12, a theoretical and experimental discussion of light modulated CIDEP is developed. The use of a radiolysis pulse to produce radicals and detection by pulse ESR is the subject of Chapter 7, which includes the method of data analysis and some typical results including the hydrated electron, reaction products from the OH radical, and hydrogen atoms in neutral or basic solution. A fairly long Chapter 19 discusses numerical methods and model dependence in chemically-induced dynamic spin polarization. There is also a discussion on the effect of magnetic fields on the types of reactions studied (Chapter 22).

Each paper is well referenced, and although there are inevitably quite a few duplicated references from chapter to chapter, the diversity of aspects discussed more than makes up for any shortfall. The book is 404 pages long plus a three-page subject index at the end. It is aimed mainly at specialists in the general areas of nmr and esr, radiation and radical chemistry and kinetics. It is not for the average layman who only wishes to aquaint himself with CIMP. For this type of publication the price is about right considering the amount of potentially useful information it contains.

C.E. Holloway