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### Book review

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*Nuclear Magnetic Resonance Spectroscopy*; by F.A. Bovey, 2nd edition, Academic Press, San Diego etc., xiv + 653 pages, £34.50, US \$49.95 (Hardcover), ISBN 0-12-119752-2.

It is nearly twenty years since the first edition of this excellent book appeared and during that time the face of NMR spectroscopy has changed dramatically. Completely new areas such as the high resolution NMR spectroscopy of solids and 2D NMR spectroscopy are given whole chapters while Fourier transform spectroscopy which occupied just over one page in the first edition now pervades much of the book. This growth in the subject is reflected in the length of the book, 653 pages compared with 396 in the first edition.

The first two chapters “Fundamental Principles” and “Experimental Methods” are similar to those in the first edition although Fourier transform techniques are of course much more prominent in the new edition. The remaining chapters are entitled “The Chemical Shift”; “Coupling of Nuclear Spins”; “Nuclear Relaxation and Chemical Rate Processes”; “Two-Dimensional Nuclear Magnetic Resonance Spectroscopy”; “Macromolecules”; “NMR of Solids”; and “Special Topics”. Of the “Special Topics” (“Less Common Nuclei”; “NMR Imaging”; “Solvent Suppression”; and “Zero Field NMR”) only the “Less Common Nuclei” are found in the first edition. There are extensive appendices covering nuclear properties (5 pages), calculated proton spectra for various spin systems (74 pages), proton–proton coupling constants (21 pages), and carbon–proton coupling constants (6 pages) together with an author index to the references and a subject index.

This book contains references into 1987 and contains many diagrams, proton spectra ranging from 30.5 to 500 MHz, solid state spectra, 2D spectra etc. The general text has been updated with  $\delta$  and Hz used in place of  $\tau$  and cps. The discussion is clear, relatively non-mathematical (there are no Hamiltonians or matrices present) and gives a good introduction to most areas of modern NMR spectroscopy. One particularly useful chapter is that concerning the “Coupling of Nuclear Spins” which gives a very good account with examples of all the common spin systems e.g. AX, AMX, AA'BB'. This together with the appendix of calculated proton spectra forms a useful body of information that is not commonly found in general NMR textbooks.

The “Less Common Nuclei” discussed are  $^{19}\text{F}$ ,  $^{14}\text{N}$ ,  $^{15}\text{N}$ , and  $^{31}\text{P}$  with almost all of the examples and spectra being drawn from organic chemistry. The organometallic chemist will, of course, benefit from the clear descriptions of the theory and techniques discussed but it is a pity that such a wide ranging book could not have given some attention to nuclei of interest to those other than organic chemists. Although useful, it is difficult to justify the inclusion of the 74 page appendix of calculated proton spectra in such a general text, the space might better have been used to cover topics and nuclei of more interest to organometallic and inorganic chemists.

The book is well produced with clear text and diagrams but is not without a number of annoying errors; for example Table 9.5 ( $^{15}\text{N}$  chemical shifts) has a sub-heading "Cyano, azide, cyanate, isocyanate" but there is no cyanate information under the heading, the relative sensitivity for  $^{29}\text{Si}$  is wrong in both Table 1.1 and in Appendix A (this error is also present in the first edition); and  $[\text{CH}_2\text{Si}(\text{CD}_3)_2]_3$  is neither drawn properly nor named correctly in Table 2.3.

The errors mentioned are minor considering the size and scope of the book and it will be the first volume that I consult when next wanting a clear explanation of an NMR technique.

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*Annual Reports in Organic Synthesis-1987*, edited Eric F.V. Scriven and Kenneth Turnbull, Academic Press, 1988, xiv + 473 pages, \$39.95, ISBN 0-12-040818-X.

This volume is the eighteenth in a series devoted to the abstraction of synthetic methodology from the current literature. In their preface the editors refer to the problems which the modern synthetic chemist faces in "keeping up with the literature". These are indeed formidable, as I have realised myself in writing an annual survey of synthetic methods. This volume contains well over 1300 abstracts, and the number of papers surveyed and referenced is substantially greater. They have certainly accomplished a Herculean task in terms of data retrieval alone, with abstracts drawn from 49 primary journals.

The material in the book is organised by reaction type, and although there is only an author and not a subject index, the contents listing is generous and will direct the reader to the required area. The first three sections are much the most extensive, being devoted respectively to carbon-carbon bond forming reactions, oxidations and reductions. Section IV considers the synthesis of heterocycles and is subdivided according to the type of heterocyclic ring under consideration, whilst Section V reviews protecting groups. Section VI has a slightly curious air, being entitled Useful Synthetic Preparations, and containing material which could not be conveniently fitted in elsewhere. It is subdivided by functional group. The final section is a collection of useful synthetic reviews.

In checking the comprehensive nature of a collection such as this, a reviewer is usually tempted to look for those of their own papers which they feel should have been included. In this respect the editors succeeded, or perhaps exceeded, since two of mine, both reviews, appeared twice! More seriously, I did find most of the items I looked for, and although I might take issue with the dumping of organometallics as diverse as organoboranes, organosilanes and organotitanium compounds under the heading of Grignard type carbanions, most information I sought was relatively easy to find.

The production of this volume has been speedy, and there is no doubt that elegant presentation has been sacrificed to this end. Neither the layout nor the figures are particularly attractive, and there are a number of minor typographic errors. However, this is probably inevitable, and the rate of movement in the field makes speedy publication especially desirable.