

NMR and Chemistry — An Introduction to Modern NMR Spectroscopy, by J.W. Akitt, Chapman & Hall, London, 3rd edn., 1992, 262 pp., £24.95. ISBN 0 412 37260 6.

This book, published in 1992, is the third edition of a well-known text, first published in 1973 and followed by a second edition in 1983. The first four chapters are dedicated to the theory of nuclear magnetization, chemical shift, spin-spin coupling and relaxation; they are followed by a chapter on the NMR spectrometer. Chemical exchange, multiple resonance and NOE are treated in Chapters 6 and 7. Chapters 8–10 are dedicated to 2D spectroscopy, magnetic resonance imaging and in vivo NMR, and high resolution solid state NMR.

There are a number of positive comments to be made on the author's insight into the physics of NMR, his style of writing, and the clarity of exposition. These qualities have made the previous editions of this book popular and appreciated by several generations of students. A few positive comments can be specifically added also for this third edition. For instance, I find the presence of 2D and MRI, as well as the updating of the NOE and related techniques, valuable.

Unfortunately, the word "modern" in the subtitle of the book is less appropriate now than it was before. The updating of the introductory part of the book (half of the book itself) is rather unsatisfactory. Many figures and schemes refer to pre-FT days. Particularly disturbing is the horizontal direction of B_0 (which was appropriate for electromagnets), especially because it coexists with the vertical direction adopted in subsequent chapters. Several theoretical plots, FIDs and spectra are hand-drawn — and not particularly well — rather than computer-generated. Many examples and exercises are still based on 60 MHz spectra from manufacturers' handbooks of the 1960s: this will be confusing for students who are probably more familiar with 200 or 300 MHz routine spectra, where several of the multiplets are already first order.

Besides specific references to the sources of data and figures, the book has a general bibliography with 16 textbooks listed, three reviews and five references to pioneering NMR works. Particularly striking is the absence, in the textbook list, of the classical books by Slichter (*Principles of Magnetic Resonance*) and by Ernst, Bodenhausen and Wokaun (*Principles of Nuclear Magnetic Resonance in One and Two Dimensions*). Apparently, they are not omitted because they are too difficult or too theoretically oriented, because the classical book by Abragam (*Principles of Nuclear Magnetism*), present in the list, is certainly neither easier nor less theoretically oriented. Some general

references to 2D NMR are also lacking like, for instance, *Two-Dimensional Nuclear Magnetic Resonance in Liquids* by Bax. Neither of the two classical books on NOE (Noggle and Schirmer and Neuhaus and Williamson) is quoted. Mentioning *NMR and the Periodic Table* by Harris, and the books by Wuthrich on biochemically oriented NMR (after all, biochemistry is a branch of chemistry) would also have been appropriate.

Personally — and perhaps in a biased way — I would also have liked to see a section on NMR of paramagnetic substances running to more than 1.5 pages, with proper references. This field has grown dramatically in the past decade: there are at least three specific books and two volumes in book series, one published in 1973, and the others in 1986, 1987, 1991 and 1993 (the latest after the present book). The word “paramagnetic” appears in the subject index only referring to the so-called “paramagnetic” contribution to the shift in diamagnetic compounds.

Another annoying feature is the presence of many printing errors that a professional typesetter (Thomson Press Ltd., New Delhi) should have avoided. From personal experience, when typesetting errors are numerous, even accurate proofreading always leaves a few percent of them, and the author should not be blamed for that.

In summary, I feel this book still deserves attention as a good text to introduce a chemist to NMR spectroscopy, but the third edition has somehow missed the opportunity to compete with other comparable texts that came out in the late 1980s, like those by Derome or Sanders and Hunter, for a prominent place on a young chemist's desk.

Claudio Luchinat