

BOOK REVIEWS

Two-Dimensional NMR Spectroscopy, Applications for Chemists and Biochemists, Edited by WILLIAM R. CROAS-MUN and ROBERT M.K. CARLSON, VCH Publishers, Inc., 220 East 23rd Street, New York, NY 10010. 1987. 511 pp. 16 × 24 cm. ISBN 0-89573-308-0. \$95.00.

The King James Bible is an example of a well written book produced by a committee, but most such efforts only illustrate the difficulties of the task. The present book provides an example of the second kind, but is nonetheless a valuable addition to the small number of books available which treat modern nmr methods in any detail.

The first chapter (65 pp.) by George Gray provides an introduction for the reader with some knowledge of nmr but unfamiliar with recent developments in the field. It first describes the responses of magnetic nuclei to multiple pulses which permit such spectral editing methods as DEPT (to determine the number of protons on each carbon atom) and the generation of 2D spectra. This is followed by a description of the most important 2D experiments, which allow the determination of proton coupling connectivities and the separation of coupling patterns within complex spectra and show which protons are attached to which carbon atoms. Sufficient experimental detail is included to guide the reader who will use the spectrometer himself.

The second chapter, 166 pages by William E. Hull, is very different. It opens with a discussion of the electronic and computer requirements for 2D spectra, considerations which most readers of this Journal are willing to surrender to the instrument manufacturer. The extensive discussion of F1 noise and artifacts is somewhat more relevant. The last half of the chapter surveys some four dozen different 2D experiments with consideration of their capabilities and difficulties. The rapid proliferation of multipulse methods in recent years allows only a few determined experts to be familiar with more than a small fraction of them. An extensive compilation such as this is valuable and unique, rendered more so by the critical evaluations.

The second half of the book is a series of chapters describing the applications of the methods in specific areas. Michael A. Bernstein (36 pp.) surveys the most useful 2D methods and the sequence in which they may be used. Horst Kessler, Hartmut Oschkinat, and Hans-Rudolf Loosli (42 pp.) show the way in which the nmr parameters of the peptide cyclosporin can be extracted from these 2D spectra. David R. Kearns (48 pp.) describes the study of the conformation and dynamic properties of DNA. Janusz Dabrowski (38 pp.) deals with the methods particularly suited to oligosaccharides. The editors themselves have contributed a chapter (38 pp.) showing what the methods can accomplish with 1 mg of a steroid. Peter L. Rinaldi (20 pp.) demonstrates the approaches applicable to the characterization of a synthetic norbornane derivative, contrasting those suitable for 200 MHz with those for 400 MHz. Finally, Gary E. Martin (52 pp.) develops structures for a diterpene, an indole alkaloid, and several aromatic polycyclic compounds.

Throughout the book the authors pay attention to the practical limitations of the methods. It is instructive, rather than disturbing, to see that estimates of the necessary quantity vary by two orders of magnitude in some cases. The literature is well covered into 1985. Vigorous editing would have made the book much more readable. It is too often evident when authors are not writing their mother tongue. Typographical errors and solecisms abound, although they seldom obscure the meaning of the text. The important second chapter uses the Bruker notation for experimental parameters extensively, which is trying for readers not familiar with the abbreviations. Nonetheless, the book's unique content and practical value will find it a place on the bookshelves of most laboratories practicing modern nmr.

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Herbs, Spices, and Medicinal Plants: Recent Advances in Botany, Horticulture, and Pharmacology, Volume 3. Edited by LYLE E. CRAKER and JAMES E. SIMON. Oryx Press, 2214 North Central at Encanto, Phoenix, AZ 85004. 1988. xi + 220 pp. 15.5 × 23.5 cm. ISBN 0-89774-360-1. \$69.50.

The third volume in this annual review series contains seven articles, entitled: "Culinary Herbs and Spices of Finland," "Pharmacokinetics of Polyphenolic Compounds," "The Biochemical Basis of Hypoglycemic Effects of Some Plant Extracts," "Advances in the Agronomy and Production of Turmeric in India," "Plant Flavonoid Effects on Mammalian Cell Systems," "Clinical Applications of *Centella asiatica* (L.) Urb.," and "An Ecological Approach to Medicinal Plant Introduction." The volume is truly an international effort with contributions by authors from Austria, Finland, Hungary, India, Israel, Spain, and the United States.

The articles selected for this volume cover a diverse range of interests from classical agronomy to molecular biology and pharmacokinetics. Several of the articles have a local focus or are very specialized, and they may have limited appeal. The articles on the culinary herbs of Finland and the production of turmeric in India are likely in this category. The discussion of the pharmacokinetics of polyphenolic compounds provides an informative introduction to a frequently ignored topic, but the article is probably outside the sphere of interest of most readers.

Two additional articles deserve specific mention for purposes of this review. The discussion of the effects of plant flavonoids on mammalian cell enzymes is interesting, but the available facts unfortunately preclude significant, long-awaited clarification of the enigmatic contributions of flavonoids to therapeutic situations. *Centella asiatica* is cited commonly for its folkloric use as an aphrodisiac; this reputed use is omitted from the discussion of clinical applications of the plant material.

This annual review series can be recommended for reference libraries with comprehensive holdings in the natural product area. The appropriateness of the series for personal libraries is limited by its relatively high cost and the diversity of topics covered in any given volume.

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