name instead of the correct INN. Indexes of "Substance Classes" and "Intermediates" are also provided, and can be useful in special cases. However, where none of the search methods mentioned above leads to the desired goal, the CD-ROM version of the encyclopedia may provide the answer; this was not available to the reviewer.

As well as targeted searches, which for some time now have been moving into the domain of electronic media, this work allows the possibility of looking at compounds from a pictorial standpoint, so that the organic chemist can try to develop and exploit the "organic chemist's eye" for recognizing the hidden patterns that enable one to distinguish pharmacologically successful active agents from the rest. The alphabetical arrangement of the active agents may allow the scientist with an eye for patterns to develop a broad visual perspective extending over the indications. Anything that helps one towards achieving this highly desirable aim is always welcome. Therefore, it makes good sense for groups working on pharmaceutical chemistry to buy this work.

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The Chemistry of Contrast Agents in Medical Magnetic Resonance Imaging. Edited by *André E. Merbach* and *Éva Tóth*. John Wiley & Sons Inc., New York 2001. xii + 471 pp., hardcover £ 110.00.—ISBN 0-471-60778-9

The Chemistry of Contrast Agents in Medical Magnetic Resonance Imaging, compiled by André Merbach and Éva Tóth, is a book devoted to the physicochemical aspects of paramagnetic and superparamagnetic contrast agents with potential application for magnetic resonance imaging (MRI). More than 30 authors have contributed their expertise, which has been arranged in eleven self-contained chapters with minimal overlap.

The book begins with an introduction to the phenomenon of nuclear magnetic resonance (NMR). Using a combination of classical and quantum-mechanical descriptions, numerous aspects ranging from energy levels to relaxation, *k*-space, and instrumentation are discussed, followed by a classification of contrast agents and some examples of their applications in medical MRI. Chapter 2 describes the theory of relaxivity of gadolinium(III) complexes. Factors determining relaxivity are discussed extensively, with special reference to the mechanisms of inner and outer sphere relaxation. This rather theoretical discourse is followed by two chapters which describe in detail, with cookbook-style recipes, the chemical syntheses of a vast number of acyclic and macrocyclic ligands suitable for complexation of gadolinium(III). The following two essays examine how relaxation times are affected by covalent and noncovalent bonding of such gadolinium(III) complexes to macromolecules, and discuss toxicity issues related to the use of gadolinium-based contrast agents in vivo. The stability and kinetic inertness of different lanthanide–ligand complexes are discussed with regard to possible decomplexation and release of noxious gadolinium(III). Next there is a discussion of the current status of computational studies aimed at modeling and predicting the relaxivity of contrast agents. An entire chapter is devoted to the elucidation of structure and dynamics of gadolinium(III)-based contrast agents by techniques including X-ray methods as well as ^{1}H, ^{13}C, and lanthanide nucleus NMR spectroscopy. Two further chapters report on electron paramagnetic resonance (EPR) and photophysical methods as complementary techniques for structural and functional studies of gadolinium(III) chelates and of analogous luminescent lanthanide complexes, respectively. A final chapter provides, an excursion into the synthesis and properties of particulate superparamagnetic iron oxide. The effects of particle size and degree of aggregation on relaxivity are discussed.

As promised on its cover, this book provides a uniquely comprehensive treatment of the physicochemical aspects of MRI contrast agents based on gadolinium and particulate iron oxide. Packed with information, it is an invaluable resource, especially for physicists and chemists involved in the development of MRI contrast agents. However, biologists, physicians, and readers unfamiliar with the field of MRI will find the discussions difficult to follow, as they are heavily physics- and chemistry-oriented. More practical biomedical aspects are treated only marginally, so that seemingly simple questions such as which contrast agent is best suited for a certain (nonstandard) application remain hard to answer. Also, target-specific and "smart" contrast agents are only mentioned briefly, even though these topics have recently attracted major interest and have become very active areas of research. Seen from a more general stance, it is Chapter 1 that doesn't fully convince with its discussion of the physics of medical MRI. It fails to provide the intended all-encompassing introduction to magnetic resonance. In its place, a well-focused exposition of magnetic resonance phenomena pertinent to relaxation would have been more appropriate. Notwithstanding these limitations, the present book is highly recommended as a thorough survey of the current understanding of synthesis, performance assessment, and theory of gadolinium- and iron oxide-based contrast agents for MRI applications.

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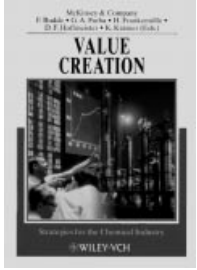
Value Creation. Strategies for the Chemical Industry. Edited by *Florian Budde, G. A. Farha, H. Frankenmölle, D. F. Hofmeister*, and *K. Krämer*. Wiley-VCH, Weinheim 2001. xx + 222 pp., softcover € 69.00).—ISBN 3-527-30251-4

The theory expressed around 1700 by the quack doctor and butcher-dentist Dr. Eysenbarth of Hannover that "Viel hilft viel" (a hefty sum of money



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