Book Review

In Re: Textbook of Contrast Media; Peter Dawson, David O. Cosgrove, and Ronald G. Grainger, eds; ISBN, 1 899066 31 4; price, $195.00; publication date, November 1999; publisher, Isis Medical Media, Oxford England; six hundred twelve pages, including index.

''Meticulous,'' ''thorough,'' and ''exhaustive,'' are words commonly used in describing high-quality scientific works. These all apply to this text. Writings that we might pick up for amusement or collateral education are often described with adjectives such as ''human,'' ''witty,'' or ''eccentric''. These adjectives also apply to this book.

One cannot help but see the personalities of the Hammersmith group in this work, especially that of Peter Dawson. David O. Cosgrove from Hammersmith and Ronald G. Grainger, now retired from Sheffield, shared the editorial duties with Peter Dawson, but it is Peter Dawson that shines through. Not only is Dawson's editorial personality manifest in the selection of authors, but Dawson also appears as a chapter author or coauthor in all three sections of the book. The three-section organization is logical and, one might say, anthropologically significant. A trinity always seems to work well with human interest.

The first section, entitled ''X-ray contrast agents,'' is the longest, at 19 chapters. The second section, ''MR contrast agents,'' is covered in 13 chapters. The third section, the shortest, ''Ultrasound agents,'' comprises nine chapters. Only the ultrasound section strays a bit from the Dawson style. David O. Cosgrove dominates here with a variant approach to chapter authorship. Most of the chapters in this ultrasound section are actually multi-author compilations, each edited by Cosgrove. Since ultrasound contrast agents could be seen as the least well established of all contrast materials, this approach is effective in that it allows a much wider voice for this ''young'' field.

Both the meticulous and human aspects of the book are apparent in the first chapter, ''History of the development of radiological contrast media (1895–1996)''. It is not enough to begin this chapter with Hippocrates and then carefully include everyone that is usually cited in early contrast material development. Oh no. Interesting details of the lives of the pioneers of contrast material development are also included. Particularly moving is the description of Dr. Moses Swick's work. This description provides a drama that includes the best and worst qualities of medical research. This drama takes Dr. Swick from an innovative young researcher, through accusations as plagiarist, to his research's final position, cited in the Congressional Record of 1978, as ''one of the five major contributions of an individual to medicine''. As is usually the case, Egas Moniz, appears in the discussion of early angiographic contrast material. However, unlike so many other descriptions of Dr. Moniz, this chapter includes details of this charismatic leader's numerous other interests as well as his severe physical handicap from gout. Gout so grossly affected his fingers that he was unable to make any injections himself for the research that he so carefully planned. Interestingly, the photograph provided of Dr. Moniz includes a caption that notes the gouty tophi in the doctor's ears.

The next chapters focus more on the science of contrast material with a summary of organic chemistry, industrial synthesis, and physico-chemical properties. The book then snaps back to the clinical arena with an assessment of the safety of contrast media. This assessment follows the needs of contrast material manufacturers, not just clinical consumers, which provides a refreshingly different way of looking at safety issues. After all, a clinician tends to be more focused on his patient on the table, rather than patients on tables across the world. A pair of Dawson chapters follow dealing with pharmacokinetics and functional imaging. These are typical Peter Dawson works, highly detailed and well modeled. The next two chapters jump back to contrast reactions with a summary of mechanisms followed by detailed coverage of cause, prophylaxis, and management. Though enjoyable to me, there is a very definite ''across the pond'' style here including commonly used clinical therapeutics carrying British names. Some readers may be annoyed by this, but the authors are always careful to also supply generic names.

Section one then changes track and becomes system oriented with chapters focusing on the renal tract, cardiovascular system, central nervous system, and the gastrointestinal tract. The next chapter, chapter 15, follows naturally if the reader by now has the appropriate expanded consciousness to see endothelium and blood as a unique body system. In fact, early in this Peter Dawson chapter, the reader is reminded that endothelium is the largest and most versatile organ in the body with a conservative calculation of this organ's surface area in the neighborhood of 1000 square meters. The reader quickly finds out that endothelia not only form pipes to conduct blood, but have an enormous number of associated products and functions too easily forgotten by a clinician watching contrast material whiz past during angiography. The next two chapters are practice oriented rather than body system oriented, covering interventional radiology and computed tomography. Both of these chapters are composed by Peter Dawson. Section One closes with two chapters on the future of X-ray contrast agents. It would be a simple matter to have a single such chapter, but, no, this book has to provide two

chapters, with rather delightful differences in opinion.

Section Two deals with MR contrast agents. The first chapter of this section immediately reminds the reader that contrast mechanisms in MR imaging are complex, reflecting not mainly the addition of external agents, but primarily the physiological and chemical differences of the imaged tissues as well as highly variable image acquisition techniques. Five chapters follow dedicated to the chemistry and clinical applications of lanthanide chelates with, of course, gadolinium dominating. These are appropriately followed with chapters on other MR contrast materials, including macromolecular agents, superparamagnetic iron oxides, targeted contrast agents, and oral gastrointestinal agents. The section is then tidied up with a future prospects chapter. However, after this, a surprise occurs. The chapter entitled ''Carbon Dioxide as a Contrast Agent'' is provided as the last chapter in the MR section. This chapter clearly belongs in Section One. There is nothing whatever wrong with the chapter, it is just mysteriously out of place.

The third and final section of the work covers ultrasound contrast agents. This section is the most brief of the three. Considering the clinical applications and utility of ultrasound contrast agents compared to X-ray contrast material and MR contrast material, this relative brevity is appropriate.

Other than the misplaced chapter, it is difficult to find any significant quibble with this book being what it states to be, a textbook of contrast media. The larger problem is trying to define the text's audience. In the foreword, appropriately written by Elliott Lasser, this book is described as ''a valuable text for anyone involved in contrast media research''. This is probably the ideal description of the audience for the work. I believe that I would see this work on the shelves of the scientific library of all contrast media manufacturers and in the personal office collections of many of the scientists involved in such research. If an interested clinician or clinical imaging scientist hungers for an introductory text on contrast materials, this is it. In fact, there is no other such text! While this book should appear in the central medical library of any large teaching institution, I suspect that it will seldom reach radiology departmental libraries or the personal bookshelves of neuroradiologists, unless they are actively involved in more basic research on contrast media. This saddens me, as I thoroughly enjoyed reading this work. However, with many other compelling texts available to the practicing neuroradiologist, the relatively narrow focus of this fine book will probably not push it into to the small space permitted by each neuroradiologist for their frequently used references.