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Atlas of Brain Function, 2nd ed.

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BOOK REVIEW

Atlas of Brain Function, 2nd ed.

W.W. Orrison, Jr. Thieme; 2008, 316 pages, 240 illustrations, \$79.95.

The second edition of Orrison's *Atlas of Brain Function* is a collection of text and images emphasizing the relationship between structure and function of the brain. There are 288 pages, including a glossary of structures with concise definitions followed by a total of 5 sections containing labeled images with descriptive keys. The first 3 sections comprise sagittal, axial, and coronal images of the brain; the fourth section is dedicated to diffusion tensor fiber tracking and functional MR imaging (fMRI); and the fifth section is a collection of 3D images of the brain. There is a 14-page index at the end.

The alphabetic glossary at the beginning of the book is a thorough and well-developed collection of more than 300 structures, with anatomic and functional definitions. In the cross-sectional imaging chapters that follow, there is a series of figures, each containing 3 images: the first is a T2-weighted inversion recovery MR image; the second is an inverted grayscale duplicate of the first; and the third is a shaded line drawing of a comparable section of the brain, with various structures labeled. Although the MR images are high quality, only 1 of the 2 is comparable with what would be used in the practice of radiology, and they are both rather small relative to the line drawing. Moreover, the drawing is not derived from the associated MR image. As such, correlating the labeled structures from the drawing to the MR images is tedious. The pages that follow each figure include descriptions of the labeled structures. Many, if not all, of these descriptions are duplications of those in the glossary at the beginning. Insofar as many structures are present on multiple sequential cross-sectional images, these same descriptions are repeated throughout the course of the atlas, in association with the other figures.

The section containing tractography is a collection of 12 images showing various fiber tracts derived from diffusion tensor imaging (DTI), most of which are overlaid on anatomic MR images. These are color-coded in the conventional manner for displaying fiber directionality. The explanations for each figure describe the labeled tracts. This section thus provides an introduction to the anatomic arrangement of white

matter tracts and tractography. The images are high quality, but many of them prove to be too busy, with multiple fiber tracts displayed on a single image. Furthermore, the section is devoid of 2D color maps, which must be studied in conjunction with the 3D tractograms. In this way, the section falls short of other white matter atlases that are currently available. The fMRI section contains 4 images showing activation of motor, auditory, visual, and olfactory cortices, overlaid on anatomic images. Again, this section is sparse compared with the available literature on fMRI. The final section of the atlas mainly comprises 3D-volume rendered MR images with associated labeled line drawings, followed by explanations of the labeled structures. As with the first 3 sections, the drawings are not derived from the MR image. Furthermore, the MR image quality is not on par with what can be achieved with state-of-the-art 3D rendering.

The *Atlas of Brain Function* derives its strength from its thorough overview of neuroanatomy and function, found in the glossary at the beginning. However, the imaging sections of the book may leave a neuroradiologist dissatisfied. Larger more clinically relevant MR images that are directly labeled would be more practical. The line drawings may aid in simplifying the appearance of the structures, which may be helpful for students of neuroanatomy, but is not as relevant to a practicing neuroradiologist. Furthermore, their utility is diminished by their incongruence with the MR images. The repetitive explanations of the figures may serve to reinforce learning but also encumber what could otherwise be a more concise atlas. In short, this atlas is best suited for medical students, students of neuroanatomy, and perhaps as a quick reference for a practicing radiologist. Radiologists may need to seek other resources for consideration of fMRI and DTI, and for detailed neuroanatomy as depicted in clinical cross-sectional imaging.

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